

## DF-K - Paddle Wheel Flowmeter with Setpoints



### General Description

The main feature of the DF flow sensor is the incorporation of a multipole magnet ring into the paddlewheel. As the paddlewheel rotates, these magnets, hermetically separated from the fluid medium, induce an DC signal in a Hall sensor mounted on the device housing. Since the DC signal frequency is proportional to paddlewheel rotation, an accurate flowrate reading is possible.

The DF sensor, when coupled with the appropriate electronics unit, can offer the user a number of features useful in the measurement and control of fluid flow. These features include an analog output, adjustable switches, batch controller, or totalizer.

### Specifications

#### DF-K Special Features

- Compact Design
- Digital Flow Rate Indication
- Analog Transmission of Flow Rate
- Two limit switches for Flow Control

#### Physical Description

**Display:** 3-Digit, 7-Segment LED with fixed decimal place

**Temperature Range:** -10 °F to 180 °F

**DF4100:** -10 °F to 145 °F

**Protection:** NEMA 4

**Wiring:** 5 foot pigtail

#### Electrical Specifications

##### Power Supply

**Voltage:** 24 VDC, +15%/-10%

**Consumption:** 5 Watts

##### Analog Output

**Current:** 0-20 mA, 4-20 mA  
Load: 0-500 ohm

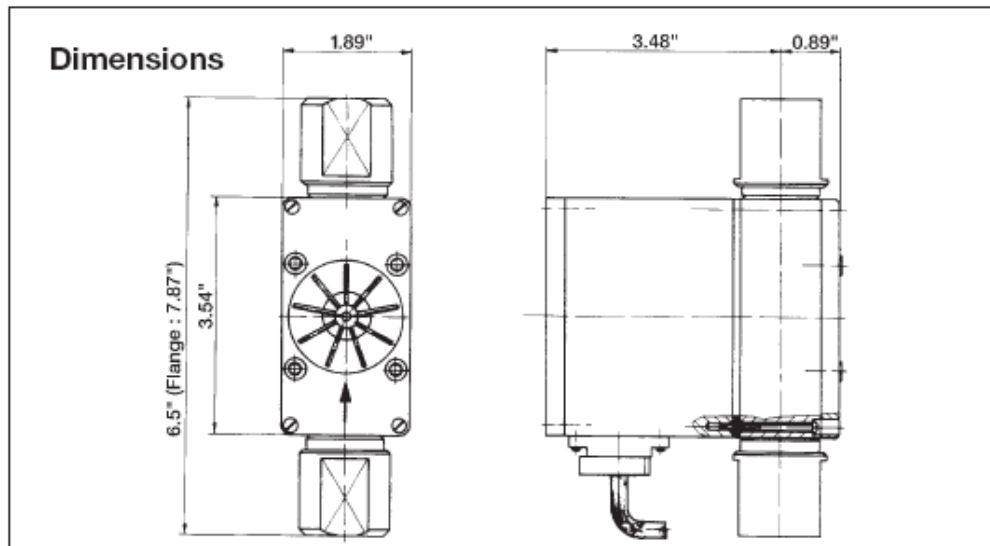
**Voltage:** 0-10 VDC, 0-5 VDC  
Load: > 500 kohm

**Relays:** 2 SPDT: 1 Minimum  
1 Maximum

**Rating:** 2 Amps @ 24 Volts

**Hysteresis:** 2.5% of full scale

**Set Points:** Front Panel Adjustable



## DF-K - Paddle Wheel Flowmeter with Setpoints

### Ordering Information

Order Numbers										
Range Water	Standard Fitting	Dia. of Orifice	Max. Pressure Drop PSI	DF Flow Sensor with Model K Electronics						
				Material Combinations						
GPM	NPT	Inches		I	II	IIB	III	IV	VI	VII
0.02- 0.14	1/8"	0.04	10.2	DF-4101	DF-4201	DF-4001	DF-4301	DF-4401	DF-4601	DF-4701
0.05- 0.30	1/4"	0.08	4.2	DF-4102	DF-4202	DF-4002	DF-4302	DF-4402	DF-4602	DF-4702
0.05- 0.60	1/4"	0.08	10.4	DF-4103	DF-4203	DF-4003	DF-4303	DF-4403	DF-4603	DF-4703
0.1 - 0.7	1/4"	0.11	9.6	DF-4104	DF-4204	DF-4004	DF-4304	DF-4404	DF-4604	DF-4704
0.2 - 2.5	3/8"	0.19	12.1	DF-4105	DF-4205	DF-4005	DF-4305	DF-4405	DF-4605	DF-4705
0.4 - 5	1/2"	0.32	2.9	DF-4106	DF-4206	DF-4006	DF-4306	DF-4406	DF-4606	DF-4706
0.5 - 6	3/4"	0.32	4.4	DF-4107	DF-4207	DF-4007	DF-4307	DF-4407	DF-4607	DF-4707
0.5 -12	3/4"	0.49	4.4	DF-4108	DF-4208	DF-4008	DF-4308	DF-4408	DF-4608	DF-4708
1 -25	1 1/4"	0.59	15.9	DF-4109	DF-4209	DF-4009	DF-4309	DF-4409	DF-4609	DF-4709
1.5 -36	1 1/4"	0.73	13.5	DF-4110	DF-4210	DF-4010	DF-4310	DF-4410	DF-4610	DF-4710

Options	
Add Suffix to Model#	
Larger Fittings Suffix »-B«	GPH Scale Suffix »-L«
1/4"	1 - 7
3/8"	3 - 25
3/8"	3 - 36
3/8"	6 - 42
1/2"	12 - 150
3/4"	Flanges for Material IV and VII on request Suffix »-FL«
1"	
1 1/2"	
1 1/2"	

Output Options	
Description	Add Suffix to Model#
0-20 mA Current Output	-S1
4-20 mA Current Output	-S2
0-10 VDC Voltage Output	-S3
0-5 VDC	-S4

#### To Place an Order:

1. Select the desired sensor wetted parts material combination.
2. Select the required sensor range.
3. The order number for your selection is found at the intersection of the »Range« row and »Material Combination« column.
4. Add the required fitting or scale option suffix found in the »Options« table on the right.
5. Add the required analog output suffix found in the lower left »Output Options« table.

#### For Example:

DF-4205-B-S3 for 2.5 GPM polysulfone sensor with 1/2" NPT fittings & 0-10 VDC output.

Table 2.1: Material Combinations & Operational Limits

Material Combination	I	II/IIB	III	IV *	VI *	VII *
Fittings	NPT	NPT	NPT	NPT or FLANGE	NPT	NPT or FLANGE
Housing	Trogamid®	Polysulfone/PP	NP-Brass	316 SS	NP-Brass	316 SS
Window	Trogamid®	Polysulfone/PP	Trogamid®	Polysulfone	NP-Brass	316 SS
Fittings	NP-Brass	316 SS/PP	NP-Brass	316 SS	NP-Brass	316 SS
Locking Pins	Brass	Brass	Brass	-	-	-
O-Rings	Buna-N	Viton®	Buna-N	Viton®	Buna-N	Viton®
Paddle Wheel	Delrin®	Teflon®	Delrin®	Teflon®	Delrin®	Teflon®
Axle	Brass	SS/ Ceramic	Brass	316 SS	Brass	316 SS
Axle Bearing	Teflon®	Teflon®	Teflon®	Teflon®	Teflon®	Teflon®
Orifice	Teflon® 2	Teflon® 2	Teflon® 2	Teflon® 2	Teflon® 2	Teflon® 2
STANDARD VERSION				HIGH PRESSURE VERSION		
Maximum Pressure	145 PSIG	145/85 PSIG	230 PSIG	230 PSIG	1450 PSIG	1450 PSIG or 580 PSIG with flange
Maximum Temperature	145°F	180°F	180°F	180°F	180°F	180°F

\* Fittings not Rotatable  
2 SS on Model DF-XX01

#### Abbreviations:

PP - Polypropylene  
NP - Nickel Plated